

Letter to the Editor

Myocardial Perfusion SPECT May Support Indications of Ischemia of the Non-Compacted Layer in Noncompaction

Josef Finsterer, MD, PhD.¹, Claudia Stöllberger, MD.²

¹Krankenanstalt Rudolfstiftung, Messerli Institute, Vienna

²2nd Medical Dpt., Krankenanstalt Rudolfstiftung, Vienna, Austria

*Corresponding Author

Josef Finsterer, MD, PhD.

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In a recent article, Li *et al.*, (2013) reported about an adult patient with left ventricular hypertrabeculation/noncompaction (LVHT) in whom LVHT was also documented on radionuclide myocardial perfusion imaging (SPECT) (Li, J. M. *et al.*, 2013). We have the following comments and concerns.

Though often mentioned (Li, J. M. *et al.*, 2013). LVHT is not congenital in each case. Some cases have been described, in which LVHT was absent on echocardiography prior to the diagnostic investigation (Finsterer, J. *et al.*, 2008). That LVHT in acquired LVHT is only hidden within a thickened myocardium (Finsterer, J. *et al.*, 2013) is rather unlikely since most of the patients with acquired LVHT did not present with myocardial thickening or hypertrophic cardiomyopathy.

Li's patient also presented with intermittent nausea. Was a cerebellar or brainstem stroke excluded by multimodal cerebral MRI as the cause of nausea? Did he ever present with atrial fibrillation? Was there a thrombus formation within the intertrabecular recesses excluded as a cause of cerebral embolism?

LVHT is frequently associated with heart failure. Did the described patient ever develop heart failure?

LVHT frequently occurs familiarly (Finsterer, J. *et al.*, 2013). Were other family members screened for LVHT? Did any of the other family members present with clinical manifestations of LVHT or asymptomatic LVHT on echocardiography?

The authors mention that the presented patient also had undergone coronary angiography. Was there also a ventriculography carried out? Did ventriculography confirm LVHT?

How to interpret the SPECT findings? Were they due to microangiopathy since coronary angiography was normal? Do they truly represent myocardial ischemia or is it only an artefact or due to reduced blood flow? Was the extension of LVHT seen on echocardiography the same as seen on SPECT or was there a difference between the two techniques concerning the magnitude of LVHT? Were SPECT findings due to myocardial fibrosis? Was there any indication for myocardial fibrosis or late enhancement? A previously reported patient with LVHT undergoing myocardial SPECT also had late enhancement on cardiac MRI (Sato, Y. *et al.*, 2007).

In case SPECT truly images myocardial ischemia this finding would perfectly match with the frequent finding of subendocardial fibrosis of the trabeculations in LVHT. Subendocardial fibrosis has been interpreted due to ischemia within the trabeculations. Did the presented patient ever undergo myocardial biopsy?

It is not true that the first case of LVHT was reported by Engberding *et al.*, in 1984 (Li, J. M. *et al.*, 2013). LVHT was reported already much earlier in 1926 by Baker, M. L. (2011),

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The authors should stress that LVHT is most frequently visible on cardiac MRI but that there are also some cases, in which LVHT was only seen on echocardiography and not confirmed by cardiac MRI (Stöllberger, C. *et al.*, 2007) and vice versa (Finsterer, J., & Stöllberger, C. 2012). They themselves mention that the sensitivity of cardiac MRI to detect LVHT is only 86% (Li, J. M. *et al.*, 2013).

LVHT patients often develop neuromuscular disorders, particularly metabolic myopathy, myotonic dystrophy, Barth-syndrome, or neuropathy? Was the patient presented by Li *et al.*, (2013) ever seen by a neurologist? Were there any other neurological abnormalities indicative of a neuromuscular disorder?

Overall, there are a number of aspects that need to be taken into consideration before drawing final conclusions concerning LVHT. SPECT may not be the diagnostic tool of choice to detect and diagnose LVHT.

REFERENCES

1. Li, J. M., Li, T., Xu, D. S., & Shi, R. F. (2013). An adult patient with left ventricular noncompaction detected on radionuclide myocardial perfusion imaging. *Internal Medicine*, 52(6), 661-665.
2. Finsterer, J., Stöllberger, C., & Schubert, B. (2008). Acquired left ventricular noncompaction as a cardiac manifestation of neuromuscular disorders. *Scandinavian Cardiovascular Journal*, 42(1), 25-30.
3. Finsterer, J., Stöllberger, C., Grassberger, M., & Gerger, D. (2013). Noncompaction in mitochondrial myopathy: visible on microscopy but absent on macroscopic inspection. *Cardiology*, 125(3), 146-149.
4. Finsterer, J., Stöllberger, C., Blazek, G., & Sehnal, E. (2013). Familial left ventricular hypertrabeculation (noncompaction) is myopathic. *International journal of cardiology*, 164(3), 312-317.
5. Sato, Y., Matsumoto, N., Matsuo, S., Kunimasa, T., Yoda, S., Tani, S., ... & Saito, S. (2007). Myocardial perfusion abnormality and necrosis in a patient with isolated noncompaction of the ventricular myocardium: evaluation by myocardial perfusion SPECT and magnetic resonance imaging. *International journal of cardiology*, 120(2), e24-e26.
6. Baker, M. L., Fong, M. W., & Goldman, B. (2011). Hypertrophic cardiomyopathy with features of left ventricular non-compaction: How many diseases?. *International journal of cardiology*, 148(3), 364-366.
7. Stöllberger, C., Finsterer, J., & Kopsa, W. (2007). Magnetic resonance imaging does not always confirm left ventricular noncompaction. *International journal of cardiology*, 114(2), E48-E49.
8. Finsterer, J., & Stöllberger, C. (2012). Apical noncompaction in metabolic myopathy may be missed on echocardiography but visible on cardiac MRI or misinterpreted as apical hypokinesia. *International journal of cardiology*, 160(2), e15-e17.